

REMARKS

Claim 1 is amended to define the components of the apparatus of the invention in a more logical sequence, i.e., to define the first temperature controller as controlling preheating of the heating section and to define the second temperature controller as maintaining the predetermined temperature. Thus, the definition of the “first controller” reads on controller 63 which preheats the heating section with feedback from “a first temperature sensor [sensor 2 in Fig. 15] for measuring the temperature of said heating section,” and which, subsequent to preheating of the heating section, monitors the temperature of the heating section and shuts down the heating section by operation of the relay switch responsive to an abnormal increase in the temperature of said heating section. See Fig. 15, [0061], [0063] and [0069] of the original specification. The definition of the “second temperature controller” now reads on controller 62 which heats the cell observation chamber to a predetermined solution temperature (and maintains that temperature – see [0063]) with feedback from “a second temperature sensor [sensor 1] with a temperature sensing part immersed in a solution within said cell observation chamber to directly measure the temperature of said solutions filling said pair of wells and said flow path,” quoting from amended claim 1. See Fig. 15 and [0062].

Claim 1 is also amended to recite the relay switch, as exemplified by 68 in Fig. 15 of the drawings.

As taught by applicants in [0069], the temperature controller 63, now referred to as the first temperature controller, in addition to its preheating function, subsequent to preheating, monitors the temperature of the heating section and shuts down the heating section by operation of the relay switch upon detection of an abnormal increase in temperature. As applicants further teach at [0069], the temperature controller 63, which receives output of a temperature sensor 65 (which directly measures temperature of the heating section), functions to “reliably” prevent the heating section 64 from overheating:

“even if there may be poor contact between the heating section 64 and the cell observation chamber 30, though it is impossible to prevent the heating section 64 from being overheated if the first temperature controller 62 is provided with the function of preventing overheating.”

The above statement must be understood to mean that it would be impossible to “reliably” prevent overheating with indirect measurement of the temperature of the

heating section, e.g., by measurement of the temperature of the solution within the cell observation chamber. Accordingly, in the present invention the various functions of the apparatus are split between two temperature controllers, one of which operates with direct measurement of the temperature of the heating section and the other which operates with direct measurement of the temperature of the solution within the cell observation chamber. Thus, the first temperature controller 63, as noted above, controls preheating and “reliably” protects the heating section against overheating because it operates with direct measurement of the temperature of the heating section. On the other hand, the second temperature controller 62, simultaneous with operation of the first temperature controller based on direct measurement of the temperature of the heating section, is able to thereby “increase the accuracy of the temperature control” [0058] of the solution because it operates with feedback of the actual (directly measured) temperature of the solution.

Accordingly, the rejection for obviousness over Kanegasaki in view of Kitagawa is respectfully traversed for the reason that the combined reference teachings provide neither applicants’ reason explained above nor any other reason for substituting two temperature controllers, which can operate simultaneously off of two different temperature inputs, for the single temperature controller 14 of Kitagawa. It should also be noted that neither Kanegasaki nor Kitagawa disclose or suggest a relay switch or other device for breaking the heater circuit responsive to detection of an abnormal rise in the directly detected temperature of the heating section.

The Examiner is requested to reconsider and withdraw the rejection of record in view of the present amendments and foregoing comments.

Respectfully submitted,
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